

# CEMENT MASONRY

A student who has completed the Job Corps Cement Masonry program is equipped with the skills to contribute to the workplace as a valued employee from day one. Competence in academic and vocational skills is required for graduation. In addition, Job Corps students learn employability and technological skills. To complete his or her Cement Masonry training, a student must master skills in these categories:

## **BASIC WORK TECHNIQUES**

Demonstrate ability to choose proper tools, perform work in a reasonable amount of time; load, unload and store materials as directed, clean up work areas properly and thoroughly; understand the importance of uniformity of the subgrade; knowledge of tools and equipment used for filling and compaction; demonstrate proper procedures and techniques for tools used in digging, pick and shovel work; properly identify tools and methods for vibrating concrete; understand different types of reinforcements, why they are used and proper installation; handle and use different jackhammering operations including bush hammering.

## **SAFETY**

Demonstrate appropriate safety precautions when performing all tasks, wear proper safety equipment and clothing and follow prescribed OSHA standards, use tools only for purpose intended, keep tools in good repair, clean, sharp and free of rust, keep tools out of the paths of other people working on the job; report all injuries immediately to proper personnel; identify locations of all first aid equipment and materials; act quickly and appropriately when fellow worker is in danger.

## **TOOLS AND EQUIPMENT**

Identify basic hand tools used in cement masonry; describe the function(s) of and specific uses of each hand tool; demonstrate ability to store and care for hand tools; demonstrate ability to use and maintain tape measure, levels, laser levels, and builder's transit level; identify the power and forming tools generally used in cement masonry; describe and practice rules and demonstrate the use of troweling machine, concrete saw, vibrating screed, power grinders, jack hammers, and power hand saw; demonstrate ability to care for and maintain power tools, set up power tools correctly, inspect, assemble and disassemble scaffolding properly.

## **FUNDAMENTAL THEORY**

Identify terms used; demonstrate ability to verbalize using trade terminology, read the inch, multiply and divide whole numbers and decimals, multiply to determine volume, convert cubic feet to cubic yards, read basic drawings and sketches and understand the information contained in them; identify materials used to make concrete; know the formula proportions for mixing different types of concrete for patch and match and dry packing; demonstrate knowledge of agents or concrete additives, determine when to use agents or concrete additives.

## **METHODS**

Demonstrate ability to choose proper form materials for layout, lay out materials in an organized and efficient manner; identify tools and equipment used in placing concrete; demonstrate ability to grade concrete behind a straight edge; identify tools and materials used in striking off; demonstrate ability to follow proper procedure while striking off; identify purpose of bullfloating and darbying; demonstrate ability to begin bullfloating or darbying at the proper time, follow proper safety precautions when using a bullfloat or darby; identify purpose of edging and the proper tool; demonstrate ability to follow proper procedures and movements to edge a radius curve on the outer border of concrete; identify purpose of jointing and proper tools used; demonstrate knowledge of proper consistency of concrete and timing for cutting the joints, use jointer correctly and with proper motion to finish joint; demonstrate proper procedures and motions when troweling; identify the purpose of using a hand float with the trowel; describe the proper conditions when to use the hand float and demonstrate proper procedures; identify purpose of troweling when finishing concrete; describe the condition(s) to begin troweling under.

**SPECIAL OPERATIONS**

Identify tools used in setting curbs and gutters; demonstrate ability to check grades properly before any work begins, set string line properly, set stakes on grade, use proper hand tools to erect step forms, sidewalks and proper wall bracing, set curb forms and follow appropriate procedures for placing the curb; follow proper procedures for finishing, strip a form properly, apply epoxy finishes and use overlayments such as Masco for skimming or leveling floors.

**SEALING, PATCHING AND REPAIRING**

Identify types of sealants and/or curing methods used in concrete finishing; identify purpose of using sealants, methods of applying sealants; demonstrate ability to use proper procedures for applying a sealant, patch, rub and caulk to concrete; demonstrate proper way to assemble molds, clean, apply release, place matrix and vibrate; demonstrate ability to finish concrete with an exposed aggregate surface, finish concrete with broom finish.

**SPECIAL DUTIES AND TASKS**

Ability to cut, bend, place and tie rebar; demonstrate ability to apply wire mesh, pull wire mesh at proper reinforcement level on slab; proper use of power washer with exposed aggregate, cleaning tools and general cleanup; demonstrate ability to mix and apply a color shake at the proper time, set expansion joint at proper elevation, properly erect scaffold bucks; demonstrate proper leveling and plumbing of scaffolds; ability to properly secure scaffolds; proper set-up for planking and guard rails.